

### **REMARKS/ARGUMENTS**

Reconsideration of the application and entry of the current amendments is respectfully requested. Claims 1-6, and 8 are currently pending. Claim 1 has been amended. Claim 7 has been cancelled as being directed to a non-elected invention. Applicants reserve the right to file a continuing application in order to protect the inventions of the cancelled claims. Support for these amendments is found in the specification and claims as originally filed. No new matter has been introduced by these amendments.

#### Election/Restriction

Applicant acknowledges that the Restriction has been made final. Claim 7, belonging to the non-elected invention, has been cancelled. Inventorship has not changed due to the cancellation of claim 7.

#### Information Disclosure Statement

Applicant acknowledges, with thanks, receipt of the initialed copy of the Form 1449 IDS submitted on August 26, 2003.

#### Specification

Applicant acknowledges, with thanks, the Examiner's recommendation regarding the status of the parent application. Applicant has updated the status of the parent application by amendment to the paragraph found on page 1, lines 7-10. No new matter was added by the amendment.

#### **Rejections under 35 U.S.C. §112, 1<sup>st</sup> Paragraph - Enablement:**

Claims 1-5 were rejected under 35 U.S.C. §112, 1<sup>st</sup> paragraph, as not being enabled for the full scope of the claims.

Applicant respectfully disagrees, submitting that the specification, coupled with the knowledge in the art, provides sufficient guidance for a person of skill in the art to make and use the full scope of the invention without undue experimentation. Claim 1 has been amended to recite "90 contiguous amino acids", support for this amendment is in the specification as originally filed, for example on page 47, lines 23-29.

The instant specification provides variants and fragments of MRE11, for example of descriptions known MRE11 domains/motifs, mutants, assays, and impact on activity (e.g., pages 1-3, and Example 4), other known MRE11 homologues (e.g., page 3, lines 13-20), conservative amino acid substitutions or variants (e.g., page 8, line 23 – page 9, line 13), sequence analyses (e.g., pages 18-22, and page 60, line 26 – page 62, line 3), homologue identification and isolation (e.g., pages 15-17, pages 26-28, pages 29-30, Examples 1-3, and 5-7). Appendix A further provides: (1) an NCBI keyword search for "MRE11", limited to deposits made before April 19, 2000 which demonstrates that at least eleven full-length MRE11 sequences were known at the time of filing across several organisms, including yeast, mammals, insects, and a plant; (2) a Pile-Up multiple sequence alignment of SEQ ID NO: 2 with other MRE11 sequences showing overall homology, regional homology (or non-homology), conserved amino acids, domains/motifs, and possible acceptable amino acid substitutions; (3) a Lion BioScout analysis of SEQ ID NO: 2 comprising several BLAST analyses vs. different databases including Pfam; and (4) supplemental information on PDB and Pfam hits identified in the BioScout analysis.

The need for some experimentation is acceptable. Applicant submits, given the disclosure of the specification, coupled with the knowledge and skill in the art, one of skill in the art was capable of making and using, without undue experimentation, an MRE11 polypeptide comprising at least 90 contiguous amino acids of SEQ ID NO: 2, and MRE11 polypeptides comprising at least 80%-95% sequence identity to SEQ ID NO: 2. Therefore, it is requested that the rejection of

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Claims 1-5 under 35 U.S.C. §112 1<sup>st</sup> paragraph for lack of enablement be withdrawn in the next Office communication.

**Rejections under 35 U.S.C. §102:**

Claim 1 was rejected under 35 U.S.C. §102(a) as being anticipated by Hartung *et al.* (Plant Physiology 121:132 1999).

Claim 1 has been amended to recite "90 contiguous amino acids", support for this amendment is in the specification as originally filed, for example on page 47, lines 23-29. The amendment obviates the rejection of claim 1 under 35 U.S.C. §102(a) based on Hartung *et al.*, therefore it is respectfully requested that the rejection be withdrawn in the next Office communication.

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### CONCLUSION

In view of the foregoing amendments and remarks, Applicants respectfully submit that the rejections of claims 1-6, and 8 are overcome, and believe that the application is in condition for allowance. Early notice to this effect is solicited. Should further issues arise, the Examiner is invited to contact the undersigned representative to expedite further examination and allowance of the application.

Respectfully submitted,



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